

In all years displayed, Montana's overall (i.e. all cause) age-adjusted death rates are below or about equal to those for the U.S. and have declined over time. Montana's age-adjusted death rates are also below those for the U.S. for many of the chronic diseases displayed; Montana's rates for heart disease, cancer, and nephritis (nephritis, nephrotic syndrome, and nephrosis) were lower than those for the U.S. in eight or nine of the years for which both Montana and U.S. values are displayed. Montana's rates for chronic liver disease and cirrhosis were lower than U.S. rates in all of the ICD-9 years but about the same or higher in most of the ICD-10 years.

Montana's death rates for cerebrovascular disease, pneumonia and influenza, and diabetes showed inconsistent relationships with the U.S. rates, with the trend lines crossing each other more than once in this period. Diabetes rates for Montana were higher than those for the U.S. in none of the three years in which underlying cause of death was determined with the rules of ICD-9 and two times thereafter. The U.S. diabetes rate seems relatively unaffected by the conversion to ICD-10. The Montana diabetes rate appears as unstable before and after the conversion, but this may be the result of a change in a relatively small number of deaths from diabetes and have nothing to do with the revision of ICD. Montana's death rates for cerebrovascular disease were higher than those of the U.S. for one of the three years in which ICD-9 coding rules were used and two of the ICD-10 years.

The state rates for chronic lower respiratory disease (C.L.R.D.)--which includes chronic and unspecified bronchitis, emphysema, and asthma--were higher than those for the U.S. in all years displayed. Revision of ICD did not change this relationship. Montana's death rate from Alzheimer's disease was virtually the same as that of the U.S. in 1997, but higher in most of the other years displayed. Revision of ICD substantially increased Alzheimer's rates for both Montana and U.S.

Montana's rates for one traumatic cause of death--homicide and legal intervention--were lower than the corresponding U.S. rates in all years displayed. Montana's rates for the remaining traumatic causes of death--accident (both motor vehicle and non-motor- vehicle) and suicide rates--were higher than those for the nation in all years displayed, irrespective of the ICD coding rules. None of the death rates for these traumatic causes appear to have been affected greatly by ICD revision.

These graphs show secular (i.e. long-term, despite occasional instability in the short-term) reductions in Montana's age-adjusted death rates for specific chronic diseases such as heart disease, cancer, and cerebrovascular disease. There seems to be a decrease in pneumonia and influenza rates, but it is not nearly so pronounced. The rates for Alzheimer's, chronic liver disease and cirrhosis, and nephritis are on the increase, although the trends are somewhat unstable and, in some cases, possibly affected by the conversion of ICD coding.

The rates for C.L.R.D., diabetes, and suicide are apparently neither increasing nor decreasing consistently. While U.S. death rates for accidents seem stable, Montana's seem to be slightly increasing.

For both Montana and the U.S., age-adjusted death rates for nephritis and Alzheimer's increased after the introduction of ICD-10, suggesting that, to some degree, the increase reflects conversion to the new revision of ICD. The rate for pneumonia and influenza decreased after the conversion to ICD-10. These results are consistent with the comparability ratios for these causes discussed earlier. (See **Figure 1** in the Technical Overview.)

AGE, SEX, AND RACE

Cause of death varies with the age, sex, and race of the decedent. Males were more likely than females to die of many of the leading causes of death listed in **Table S-7** found in Vital Statistics reference tables. More males than females also died of chronic lower respiratory diseases and chronic liver disease and cirrhosis. The larger difference between males and females, however, was seen in deaths from traumatic causes. About 65% of the accidental deaths were males (see **Figure 47**). Three times as many males as females died of homicide. Finally, more than four times as many males as females committed suicide. In contrast, much more nearly equal numbers (and proportions) of males and females died of heart disease and cancer.

It is also instructive that slightly more than 17% of the Native Americans who died in 2005 died of one of the traumatic causes—suicide, homicide, or accident—while only 8.4% of whites were claimed by these causes.

Accidents were more likely to cause the deaths of the young than the old. They accounted for 12.5% of the accidental deaths of those 14 years of age or younger, 51.0% of the deaths of those between the ages of 15 and 24, and 42.6% of those between the ages of 25 and 34 years. By contrast, accidents accounted for 6.1% of the deaths for the entire population (i.e. the “all-age” group).

Suicide was the cause of death for 18.3% of the decedents between the ages of 15 and 44. By contrast, it was the cause of death for only 2.4% of decedents of all ages. Of the suicide victims, 82.0% were males.

As age at death increases, chronic diseases—particularly heart disease and cancer—become more likely as the cause of death. Cancer, followed by heart disease, was the leading cause of death for the age categories between 45 and 84 years. However, for the age categories 85 and older, heart disease was the leading cause, with cancer second. For the all-age category, cancer (22.9%) was the leading cause of death, followed closely by heart disease (21.7%). Frequencies and the percent distributions of deaths by cause for all ages are shown in the last pie graph of **Figure 49** (p. 76).

Frequencies and crude rates for the ten leading causes of death (for decedents of all ages) are shown for Montana and each of its counties in Vital Statistics reference tables **Table S-6**.

Figure 47 displays frequencies of death for Montanans in 2005 by race, sex, and selected major cause of death.

Figure 47

**FREQUENCY OF DEATH BY SELECTED CAUSE, RACE, AND SEX
MONTANA RESIDENTS, 2005**

Cause of Death	All Races Male	All Races Female	White Male	White Female	Native American Male	Native American Female
All Causes	4,311	4,186	3,767	3,616	200	209
Cancer	1,020	927	910	815	38	41
Heart Disease	989	853	873	757	39	27
Chronic Lower Respiratory Diseases	291	289	259	256	6	10
Accidents	335	182	278	143	27	22
Cerebrovascular Disease	207	314	185	259	4	15
Diabetes Mellitus	136	147	114	117	12	12
Alzheimer's Disease	75	192	64	169	1	1
Suicide	168	37	145	30	8	5
Pneumonia & Influenza	99	113	90	103	3	3
Nephritis, Nephrotic Syndrome, and Nephrosis	56	53	53	46	0	3
Chronic Liver Disease and Cirrhosis	71	49	52	27	14	17
Homicide	23	9	15	6	6	2
All Other Causes	841	1,021	729	888	42	51

As mentioned in the Technical Overview of this report, the Montana death certificate, beginning in 2003, records race in greater detail than in the past. Not only are more racial categories used, but informants are also specifically asked to name all of the several classifications that may apply to a decedent. The result of this additional prompting has been a much greater proportion of decedents classified by two or more races. This different manner of counting deaths by race could very possibly alter the outcome of mortality ratios calculated for the various races and affect apparent racial disparities. **Figure 48** displays the distribution of decedents by race for the last decade, by year of death.

Figure 48

**FREQUENCY AND PERCENT DISTRIBUTION OF DEATH BY RACE
MONTANA RESIDENTS, 1996-2005**

RACE	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
ALL RACES	7,686	7,730	7,960	8,082	8,071	8,252	8,473	8,445	8,083	8,497
WHITE	7,340	7,374	7,590	7,618	7,668	7,839	8,003	7,207	7,006	7,383
Percent	95.5	95.4	95.4	94.3	95	95	94.5	85.3	86.7	86.9
NATIVE AMERICAN	316	333	345	429	366	385	433	402	403	409
Percent	4.1	4.3	4.3	5.3	4.5	4.7	5.1	4.8	5	4.8
OTHER SINGLE RACE	3	1	4	3	1	3	2	4	14	14
Percent	0	0	0.1	0	0	0	0	0	0.2	0.2
MULTI-RACE	0	1	1	0	0	0	1	791	633	665
Percent	0	0	0	0	0	0	0	9.4	7.8	7.8
UNKNOWN	27	21	20	32	36	25	34	41	27	26
Percent	0.4	0.3	0.3	0.4	0.4	0.3	0.4	0.5	0.3	0.3